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NOTES ON THE SEAL AND WHALE FISHERY OF 1890.

By Thomas Southwell, F.Z.S.

Although not equal to the returns of the previous two years, the take of Seals at the Newfoundland Fishery in the season of 1890 was fairly successful, the total catch by the same nineteen vessels which were present in 1889 having been 209,000, against 303,287 in the previous season. Of these, six vessels returned with fewer than 8000; seven with over 8000 but less than 15,000, and the remaining six from 15,000 upwards. The 'Neptune' took the lead with 22,000; followed by the 'Falcon,' 19,000; 'Terra Nova,' 18,100; 'Rasager,' 17,000; 'Wolf,' 16,000; and 'Greenland,' 15,000—an average of 17,833; the total average of the nineteen vessels being 11,000, against 15,963 in the season of 1889. None of the vessels were "clean," and only one, the 'Kite,' made a second trip, for 800 Seals. Four Dundee vessels were present—the 'Terra Nova,' which took 18,100; 'Aurora,' 12,500; 'Esquimaux,' 10,100; and the 'Polynia,' 7400: these 48,100 Seals are included in the previous total. Capt. Milne, of the 'Esquimaux,' arrived at Dundee on April 16th for repairs, and reports that after leaving St. John's, on March 10th, he "encountered very heavy ice, so that progress was slow. After taking advantage of all the available lanes in the ice, the 'Esquimaux' got within twelve miles of a body of Seals to the north-east of Funk Islands. Pushing onwards, the main body of the Seals was struck on March 26th, and during two days nearly 10,000 "harps" were taken on board. The Seals were in prime condition, the pelts averaging 53 lbs. each. On March 28th it was found that the vessel had sustained serious injury to her bows,—a number of the ice-plates having been carried away and the wood-work cut through, so that the vessel was leaking,—Capt. Milne was therefore reluctantly compelled to relinquish fishing. Temporary repairs were effected, and the vessel steamed back to St. John's. On the way a large body of old Seals was found, and 400 were taken on board, when the leak broke out afresh, and the passage had to be resumed, St. John's being reached on the 31st March. . . . . Capt. Milne reports the death of one of his crew, Robert Peterson, a native of Shetland. On March 26th, Peterson was sealing by himself at a distance from any other men, and unfortunately slipped through a hole in the ice. He caught hold of the edge of the ice, but was unable to raise himself. One of the crew of the steamer 'Wolf' happened to come upon Peterson, who was still clinging to the ice, but by that time he had suffered so much from exhaustion and cold that the efforts to resuscitate him failed. He was taken on board the 'Wolf,' where he died, and his body was subsequently transferred to the 'Esquimaux' and buried at sea." Such are some of the dangers of sealing on the Newfoundland ice.

The young sealing in the Greenland Seas was a perfect failure, owing to the exceptional weather experienced, of which I shall have more to say further on. Both Scotch and Norwegian vessels entirely missed the breeding pack, and many of them were frozen fast in the ice for six to eight weeks. On their release they were scarcely more successful with the old sealing: there were plenty of Hooded Seals seen, but owing to the nature of the ice they were too much exposed to be approached successfully, and took to the water on the approach of the boats.[*] The total number of Seals brought home by seven vessels from Greenland was 4376 only, and from Cumberland Gulf the sailing ship 'Alert' arrived with 2227, making a total of 6603 only, against 15,079 in the previous season. This section of the voyage, it will be seen, resulted in a very serious loss, which was not retrieved—at least so far as the British vessels were concerned—by the Right Whale and Bottle-nose fishery in the same waters which followed.

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[*] Nansen ('The First Crossing of Greenland,' chapter vi. p. 158) is of opinion that the recent scarcity of Hooded Seals is more apparent than real; he believes that these animals, which were formerly found near the sea edge of the ice, have changed their habits in consequence of the persecution to which they have been subjected, and now frequent the ice lying nearer the shore, and unapproachable by the sealers; and in such situations he found them in undiminished numbers.

The total produce of the Newfoundland and Greenland old and young sealing was 54,686 Seals, yielding 647 tons of oil (against 91,365 Seals and 1062 tons of oil in the previous season); these at £21 per ton of 252 gallons, and, say, 6*s.* per skin, would probably realise about £29,993, against a similar estimate of £59,000 in 1889, but of course the great bulk of this was earned by the Newfoundland vessels.

The total number of vessels which left Dundee for the Seal or Whale Fishery was ten, the same ships as in the previous year; from Peterhead there were seven – the 'Eclipse,' 'Hope,' and 'Perseverance,' screw steamers, and the 'Traveller,' 'Baltic,' 'Alert,' and 'Perseverance,' sailing vessels; the 'Baltic' went to the Bottle-nose fishery, and returned "clean," and the two latter returned from Cumberland Gulf.

The Davis Straits fishery has again been a fairly successful voyage, five vessels returning with 18 Right and 806 White Whales, yielding 387 tons of oil (about 124 tons of which would be white whale oil), worth £22 per ton, and 13½ tons of bone. The late Capt. Adams, whose sad death I shall have to mention further on, was exceptionally successful, killing six Whales, which produced 100 tons of oil and 117 cwt. of bone; these, I believe, were procured in the middle ice about the end of June. By the beginning of July the ice had all cleared away, and later on not a particle of ice was to be seen in Davis Straits. I am informed that the vessels fishing in Prince Regent's Inlet got four Black Whales and 806 White Whales before mentioned, and that the three vessels remaining out till the fall got five Whales amongst them, all fine fish; also that there were plenty of Whales seen, but owing to the absence of ice and the boisterous weather which an open season produces, the Whales would not lie, and the boats could not get a fair chance.

The following extract from the 'Dundee Advertiser' of the 17th Nov. 1890, will serve to show the character of the Davis Straits voyage of the past season:—

> "The steamer 'Polynia,' belonging to the Dundee Seal and Whale Fishing Company, arrived at Dundee on Saturday afternoon from a

successful voyage to Davis Straits, her cargo consisting of 127 tons of oil and 3¼ tons of whalebone, the produce of five Black and 317 White Whales. In the spring the 'Polynia' was engaged at the Newfoundland Seal fishing, and, after having returned to Dundee, she was equipped and left for Davis Straits on 24th May, in place of the 'Esquimaux,' which was so seriously damaged by ice that she could not be repaired in time. A smart run was made to Cape Farewell, and few obstructions were encountered during the northward passage along the east coast. Capt. Milne states that very little difficulty was experienced in crossing Melville Bay this season. Icebergs were numerous, but there was very little pack-ice. This season has been characterised by the exceptionally small amount of pack-ice in the Strait, the result being that the Whales kept out in the open sea, and were exceedingly difficult of approach. According to Capt. Milne, this has been the most open season he has ever experienced at Davis Straits. After getting through Melville Bay, the 'Polynia' went to what is known as the "middle ice," where a large Whale was captured about the middle of June. A visit was next made to Pond's Bay, and the 'Polynia' subsequently passed through Lancaster Sound to Prince Regent Inlet. Here the condition of affairs was reversed, for the Inlet was so full of pack-ice that although Black Whales were numerous only two were captured. A considerable addition to the cargo of oil was made here by the crew falling in with a school of White Whales, of which 317 were killed. After returning from Prince Regent Inlet, Capt. Milne tried all the fishing stations from Pond's Bay southward along the west coast. At Pond's Bay he was visited by Olnik, the Eskimo who came to Dundee with Capt. Adams. He was in good health and spirits, his party having had a very successful fishing season, and he asked Capt. Milne to remember him to his friends in Dundee and Broughty Ferry. He was then unaware of the death of Capt. Adams, and expressed the hope that he might make another trip to this country on board the 'Maud.' Capt. Milne states that many Whales were seen while coming down the west coast, but owing to the absence of ice they generally kept from twenty to fifty miles off the land, and could scarcely be approached. The crew succeeded in killing a Whale off Cape Eglinton, and another off Cape Cater, which made up the cargo. During the latter part of the season the weather was squally, with frequent snow storms, and on the 30th October the 'Polynia' bore up from Exeter, the run home being accomplished in fifteen days. The voyage will prove remunerative to the owners, as the whalebone is worth over £6000, having been sold to arrive at £2050 per ton."

Owing to the great scarcity of bone it has been fetching enormous prices, one parcel having been sold at £2400 per ton, and I am informed that a re-sale of part of that brought home by the 'Maud' took place at £2550 per ton. I believe that none has produced less than £2000. In addition to the sixteen Black and 806 White Whales ninety Walruses were killed in Davis Straits.

The Whale fishery in the Greenland Seas proved an absolute failure, the only produce which was brought home by the Scotch ships being 13½ tons of Bottle-nose oil, the yield of eighteen of these animals killed by Capt. David Gray, of the 'Eclipse,' and worth £25 per ton. Capt. Gray saw only two Whales, one of which he got fast to, in lat. 79° 39′ N., long. 4° 16′ E., but the harpoon drew, and altogether there were only six Whales seen by the whole of the vessels; these were in the early season, and not one was met with in the South Ice.

The reason of the want of success both in the Seal and Whale fishery in the Greenland Seas was the enormous accumulation of ice; this was in consequence of the exceedingly fine weather which prevailed during the whole season, calms and light easterly winds prevailing with severe frost in the spring, during which time the young ice continued to accumulate, there being no wind to break up and disperse it; the usual southerly drift was absent during the whole season. Mr. R. Gray constantly mentions, in his Log, the vast numbers of Little Auks which frequented the ice edge, the open floe-waters which usually form their feeding places, being probably frozen over. This disastrous termination to the Greenland voyage will be productive of serious consequences to the owners of the vessels, most of which will probably succumb to the series of bad years which they have experienced or pass into the hands of other owners. The Norwegians had a successful season with the Bottle-nose fishery, some fifty vessels killing about 2000 of these animals.

I have mentioned the death of Capt. Adams, of Dundee: this took place immediately after the arrival of the 'Maud' in August last; he was landed seriously ill at Thurso, and died before reaching Inverness. Capt. Adams was one of the best known and most successful whaling captains sailing from Dundee. He had been twenty years in command, and during that time had killed about 190 Whales, all, I believe, in the Davis Straits fishery. It was with Adams that Capt. A. H. Markham made a whaling voyage to Baffin's Bay and the Gulf of Boothia in 1873; he then commanded the 'Arctic,' but left that vessel after the voyage of 1883, and joined the 'Maud' in 1886, which he continued to command till his last voyage.

The large number of Whales seen in Davis Straits will probably attract an increased fleet from Dundee in the coming season; but the continued want of success in the Greenland Seas is likely to produce a contrary effect in that direction.

The absence of Whales in those seas during the past season is certainly exceptional, and probably arises from the peculiar conditions of the ice; but I am informed that the failures, in some at least of the previous years, have been, in a great measure, due to the vessels cruising about in fleets, to the great disturbance of the Whales, instead of pursuing their search singly; the Whales have thus been rendered very shy, and when seen have proved quite able to take care of themselves. The fitting out of a whaling vessel has now become a very costly matter; added to which the high rate of wages demanded by the men renders an unsuccessful voyage a heavy loss; but it is the opinion of a Commander of great experience that there are still sufficient Whales in the Greenland Seas to pay for their pursuit, provided too many vessels do not take part in the fishery, and that each "steers by its own compass," otherwise this branch of the fishery must soon come to an end.

THE BIRDS OF PAPA STOUR, WITH AN ACCOUNT OF THE LYRA SKERRY.

By Harold Raeburn.

The following account of the birds of Papa Stour is necessarily a very imperfect one, from the difficulty of obtaining reliable information as to the winter visitors. This defect is very general in accounts of the Ornithology of our outlying islands which are not lighthouse stations, or which have not been so fortunate as to possess—like Unst—such an enthusiastic and able resident naturalist as the late Dr. Saxby.

Saxby apparently never visited Papa Stour, for in his 'Birds of Shetland' he does not even mention this island, and the references in other and earlier writers are few and brief. My acquaintance with the island and its bird-life was made in the course of two visits paid in June, 1887, and again in June, 1890; and Mr. W. Eagle Clarke has kindly given me a list of species observed by him on Papa Stour and the Ve Skerries in June of last year (1890), which enables me to add one or two species not observed on my visit.

Papa Stour (*i.e.* Pope or Priest Island, and Norse *Stor*, large) is one of the minor islands of the Shetland group. It forms the southern point of that large and many-voed inlet of the Atlantic, St. Magnus Bay, and is the most westerly, with the exception of Foula. The Sound of Papa, which separates it from the mainland, is only about a mile and a half in width; but through this rushes, at certain states of the wind and tide, one of the worst of the many "roosts," or tide-races, round these coasts.

Despite its magnificent caves, fantastically-shaped stacks, and fine cliffs covered with sea-fowl, Papa Stour has received perhaps less attention from travellers and naturalists than any other of the islands. This has no doubt been owing to the difficulty of access, the nearest village on the mainland—Sandness—being until recently separated from Walls on the south by eight miles of roadless hill and bog, and from the central highway to to the east by a perfect labyrinth of lochs of all sizes and levels. Now, however, a road connecting Sandness and Walls has just been finished, so that it is possible to drive right from Lerwick to Sandness if a little jolting be not objected to.

One of the principal reasons for my visit to "Pāāpa," as it is called by the natives, was to ascertain if the accounts of the old writers on the Ornithology of Shetland, with regard to the great colony of *Puffinus anglorum* on the Lyra Skerry, held good at the present day, since in Shetland at all events—whatever may be happening elsewhere — my experience points to a great recent decline in the numbers of this species.

The earliest ornithological writer who mentions Papa Stour is Brand (1701): he, however, never visited it, and is generally quite unreliable. He says of it:—"The Isle of Papa Stour is said to be the pleasantest little isle in all this country. Two miles long, and well furnished with fewel, grass, corn, rabbets, &c. . . . . . Nigh to this Isle lyes the Lyra Skerries, so called because the lyres (those fat fowles spoken of in our description of Orkney) do frequent this Skerry."

That accurate and most painstaking naturalist and microscopist, the Rev. Geo. Low, visited Papa Stour (1770) on his Shetland tour, and says of the Lyra Skerry, it is "inhabited by vast numbers of Shearwaters—lyries." I can discover no more recent reference to the Ornithology of the island than this.

The surface of Papa Stour, so far from being "well furnished with fewel, grass, &c.," is, to a large extent, almost totally devoid of any vegetation at all. All the peat has been burned long ago, and the people have to bring their "fewel" from the Island of Muckle Röe, at the head of the bay. The only part of the island where any soil exists is the low-lying ground to the south, and the fields there have been chiefly "built" by "scalping" the rest of the island. This part contains all the houses, the population—as Stour is an important fishing-station—being considerable, amounting to over 250 at the last census. This fertile part is the haunt of most of the few land species of birds which breed on the island.

From here the slope is up to the N. and W., attaining a height of 288 feet at Virda Field, N.E. of the "Horn," a huge spur of rock which projects in a striking and picturesque manner above the face of the overhanging cliff. These northern and western cliffs, along with the numerous fantastically-shaped stacks, and the two larger islets, Fogla and Lyra, are the principal haunts of the sea-fowl.

Four and a half miles N.W. lie the low wave-washed rocks called the Ve Skerries (Norse *Ve*, Woe).

The inland barrens are almost totally devoid of life; an occasional pair of Ringed Plovers, or the still less frequent Wheatear, is all that breaks their dreary stone-strewn desolation. In the old times the men cf Papa had a reputation as climbers little inferior to those of Unst or Foula, but for many years past climbing has been almost entirely given up, and I was informed that only two men on the island are now able to make the ascent of the Lyra Skerry. I was fortunate enough, on the occasion of my second visit, to secure the services of the best of these men. He rejoices in the name of "Long Peter," and certainly deserves the adjective, standing some 6 ft. 3 in. in his "rivlins" (raw cowhide shoes worn by the Shetlanders). I had a good illustration, during the course of the day, of the great advantage his enormous reach gives him in cliff climbing.

On Friday, June 13th, 1890, the wind being favourable though rather strong, Mr. Scott, of Melby, and I crossed the Sound, and landed in Papa, but it was not till 4 p.m. that arrangements were completed for a visit to the Stacks. We pulled out of Hamna Voe in a light "sixern," keeping well in shore to avoid the wind, which was getting rather strong, and passing on our way several pinnacled stacks, each usually with its pair of *Larus marinus* nesting on the grassy summit, and any shelves on the side occupied by the piles of seaweed and dried grass forming the nests of the Shag. Rowing through a narrow chasm between Sula (query, has this any connection with *Sula bassana:* see Sulasgeir Suliskerry) and Asha stacks, we came in sight of the two Skerries.

Fogla—Fowl-a—is an islet of considerable size, grazing a large number of sheep, which are landed on it by being thrown out of a boat on to the rocks at the only possible landing-place: this is a narrow ridge of rock, between two enormous chasms, which slopes up to the top of the islet. Though the ascent is not at all difficult, a man lost his life here—as many sheep are often lost—by slipping off the ridge into the chasm below. His body was never seen again. I had been questioning the men with regard to the birds to be found on these islets, and especially with regard to the Shearwater or Lyrie, but they did not appear to be at all acquainted with it, and evidently were ignorant of its breeding habits.

We landed on Fogla without much difficulty, and I made a hurried examination of the island, which is about a quarter of a mile long. The Shearwater certainly does not breed here, for there are no burrows of any kind on it. I saw many nests of *Larus fuscus,* and obtained one of *L. marinus,* perched—very characteristically of that bird in this region—on the top of a semi-detached pillar of rock. Peter also brought me three eggs of the Guillemot, and asked if those were Lyrie's eggs! The men also found a few Eiders' eggs, and many eggs of the Lesser Black-backed Gull, but most of the nests contained only one egg, this islet being too easy of access. I found a different state of things to exist on the summit of the all but inaccessible Lyra Skerry. This, to which we now pulled, is very incorrectly termed a skerry, which means, strictly speaking, a low wave-washed rock. It is really a huge "stack" of porphyritic rock, 180 feet high and about a quarter of a mile in circumference. It lies between Fogla and the cliffs of Papa, from which it is distant about a furlong, and has two fine outlying stacks or pillars on either side, called respectively "Snolda" and the "Fit." Lyra is perpendicular, or overhanging, on all sides except one small portion at the S.E. corner, just to the right of the magnificent sea-floored cavern that passes through the island. This was pointed out to me as "the road up."

Peter now took a coil of codline in his hand, and, watching his opportunity as the light boat rose on the swell, jumped clear of the water on to a dry ledge. Though I did not relish the look of the said "road up," there was no other way of getting to the top; so I followed him. Peter now explained to me that there were only two "bad bits"—one about half-way up, and the other just at the very top. The first of these is where the rock projects so far as to overhang the sea below, and from where—the men were careful to inform me—a climber had fallen some years before, but, striking the water, was picked up by his comrades in the boat, escaping with a broken arm and a severe shock from a fall of 90 feet. They added, perhaps unnecessarily, that he did not again attempt the ascent.

The last fifteen feet, however, according to Peter, was the only really difficult bit. I had on a pair of indiarubber shoes, which are capital for rock climbing *as long as they are dry;* but when I had got up fifty feet or so I followed Peter's example and took to stockings, as they afford much greater freedom for the toes.

The ascent for the first 90 feet is comparatively easy, for the rock, though almost perpendicular, is firm. At this place occurs the first "bad bit," as it is necessary to round a point which projects clear over the water, and the ledges have a nasty outward slope. However, the finger grip is good, and, watching where my guide put his feet, we were soon both past this. Above this part the climbing is comparatively easy till the top is neared. Here, within fifteen feet of the summit, we brought up against what appeared to me a totally unscaleable piece. We were clinging in a sort of shallow niche of the cliff, which above our heads narrowed to a crack about eight inches wide. If it had been a foot wider the ascent would have been comparatively easy by bracing the body against the sides, but its narrowness precluded this. I now watched Long Peter's movements with interest, and here was the point where his great height and long arms stood him in good stead, for, stretching himself up the left-hand edge of the crack, he seized a small ledge nearly eight feet above the niche we stood in, and slowly and carefully he drew himself up, finding a crevice for his toes, and, getting another grip higher up, he was at the summit in a few seconds. He then passed the doubled codline down to me, which I fastened under my arms, and, Peter putting a 56 lb. strain on it, I swarmed up the edge of the crack, and stood beside him on the top. The sight to an ornithologist was worth the climb. From out the hollows between the luxuriant grass tussocks, uncropped since the world began by the hungry teeth of the Shetland sheep, swarms of Lesser Black-backed Gulls were rising, while all around, with hoarse deep bark and threatening swoop of his wide pinions, *Larus marinus* showed his displeasure at our intrusion, and in threes and fours the heavy Eider Ducks fluttered off their downy nests, and disappeared over the edge of the stack. I paid no attention to these, however, but at once proceeded to hunt for the Manx Shearwater.

The summit of the stack is about three acres in extent, roughly bean-shaped, with the concavity towards the north. It slopes gently up from S. to N. The vegetation is of extraordinary luxuriance, many of the grass tussocks rising to the height of two feet, with deep hollows covered over with tangled herbage lying between. The bladder campion was especially rank. These hollows I now explored for the Shearwater, but without success. Many promising-looking tunnels I found led a foot or so in to the nests of the Eider, with its three, four, or five eggs, most of them apparently incubated, while the more open hollows very frequently contained nests of *L. fuscus* with eggs or newly-hatched young.

After a long and careful search I failed to find a single genuine burrow, and not a trace of any such bird as the Manx Shearwater was to be seen or smelled. Nor does the bird nest upon the sides of the stack, for these are of solid rock, so smooth and perpendicular that a few Guillemots, Razorbills, Shags, and Kittiwakes can barely find foothold.

Thus, despite Low's account and the name of the stack itself, no Lyries now breed here. The colony of *L. marinus*, "Swabie" as it is called, is, however, a very fine one,—by far the largest in Shetland, with the exception of that upon the totally inaccessible "Holm of Noss" near Lerwick. I counted twelve nests of this fine bird (nearly all with three eggs) placed at intervals of a few yards in a row along the N.W. edge of the stack; there were about as many on the N.E. ridge, and several others scattered over the stack.

L. fuscus is much more numerous,—about ten or twelve pairs of the smaller to each of the larger kind.

I did not identify any Herring Gulls as belonging to Lyra, though several were seen in the vast cloud overhead: but these might have come either from other stacks, or from the cliffs of Papa Stour. One would wonder how, amongst such a swarm of confirmed egg and chick swallowers as the two species of Black-backed Gull, the Eiders can manage to raise a brood at all; but that they do manage it is an evident fact. They do not, however, escape without paying toll, as was evidenced by the number of sucked egg-shells strewn about the edge of the cliff. The Eider always covers her eggs when leaving, and these nests being so snugly concealed in the deep hollows between the tussocks, is the only explanation of the fact that many of the nests of the Eider contained four eggs, apparently almost hatching. The ducks were very tame; one, indeed, permitted me to lift her off her nest, which, curiously enough, contained only one egg.

If any doubt now existed as to the fact that the Eider Duck often *carries* her young to the water, these nests would be quite proof enough, as a jump of nearly 200 feet would certainly be too much for the young to take alone.

The view from the summit of the stack is grand in the extreme. Facing north, on the right, we have the coast-line of the finest cliffs in Papa, with the giant "Horn" projecting many feet over the restless ocean, now beginning to break heavily beneath the rising wind. To the left, about five miles distant, lie the low wave-washed Ve Skerries, the last remnant of land in this direction, and the most westerly rocks in Shetland except the Island of Foula, which rises dim and vast on the south-western horizon.

But Peter was back with his jersey crammed with eggs, and it was time we were off: to carry anything down the way we came up would be an utter impossibility; but here the codline came into play, for Peter, walking to the extreme edge of the cliff just over the archway through the island, signalled to the boat to be ready, and lowered his harvest swiftly and steadily straight into the boat,—doing the same with the fishing-basket containing my more modest, if safer, selection.

My enjoyment of the scene upon the summit had been somewhat dashed by thoughts of the descent; but, with the aid of Peter's codline for the top piece, it was soon accomplished, and I was exceedingly glad to again jump on board our boat.

Mr. Scott told me that while Peter and I were up the stack a "Mallie" (Fulmar Petrel) had been seen circling round it; but whether this points to the possibility of a new colony of this evidently extending species, or whether the bird was only a straggler from Foula, where the Fulmar has been established for about eighteen years, I was not able to ascertain.

The men all assured me that this was the first time that Lyra had been ascended by anyone not a native; and this being so, I regret that I did not obtain specimens of the plants growing there, as places inaccessible to sheep are scarce in Shetland, and here, if anywhere, one would expect to find survivals of different climatic conditions to those which now prevail over the islands.

Though rabbits are plentiful on Papa and the islets in the Sound, fortunately there are no rats; nor, indeed, are there any of these destructive animals in the whole district of Sandness, on the opposite shore of the mainland.

We disturbed many Seals on Fogla, but all those I saw were of the common species, *Phoca vitulina*. *H. gryphus*, however, frequents the Ve Skerries in some numbers.

LIST OF THE BIRDS NOTED, WITH THE NATIVE NAMES.

Saxicola œnanthe, Wheatear (Steinkle). The most generally diffused land bird.

Troglodytes parvulus, Wren (Robin). Not common.

Anthus obscurus, Rock Pipit (Bank Sparrow). Fairly abundant on the cliffs; observed on Fogla, but not on Lyra.

Hirundo rustica, Swallow. Several were seen for about a week, about Sandness and the Sound of Papa, in May, 1890.

Passer domesticus, Sparrow. Abundant, nesting in the thatch of the houses and sheds.

Acanthis flavirostris, Twite (Lintie). Not very numerous. I found a nest with young in 1887, on Papa.

Emberiza miliaria, Common Bunting. Common round the crofts.

Sturnus vulgaris, Starling (Starn). Abundant.

Corvus corax, Raven. One or two pairs breed. Mr. W. E. Clarke saw five near the "Horn," in June, 1890.

Corvus cornix, Hooded Crow (Craa). Common.

Alauda arvensis, Sky Lark (Lavrock). Not very numerous.

Asio accipitrinus, Short-eared Owl. This is probably the "Hoolet" that comes in the autumn. It does not breed, however, and in fact very rarely does so in the Shetlands.

Haliaëtus albicilla, Sea Eagle (Erne). Is occasionally seen; there is an eyrie at no great distance from the island.

Falco peregrinus, Peregrine (Goshawk). A pair nest just under the "Horn." I put the female off the nest in June, 1887, and Mr. W. E. Clarke noted them there in 1890.

Phalacrocorax carbo, Cormorant (Scarf). Scarce.

P. graculus, Shag (Scarf). Very abundant. Nesting on all the stacks, as well as on the cliffs.

Anas boscas, Mallard (Wild Duke). Mr. W. E. Clarke detected eleven on one of the lochs in 1890. I did not observe this species.

Mareca penelope, Wigeon. Mr. Clarke also observed a male Wigeon on one of the lochs; not noted by me.

Somateria mollissima; Eider (Dunter). Very numerous on Lyra; a few on Fogla. One nest with sucked eggs found by Mr. Clarke on the Ve Skerries, June 11th, 1890.

Mergus serrator, Merganser. Male and female on loch, W. E. C., June 4th, 1890. One in Hamna Voe, H. R., June 13th, 1890. Rare.

Columba livia, Rock Dove (Doo). Very abundant. I obtained a nest in a crack of the cliff on Papa, on June 7th, 1887. The Papa Stour Doves are very troublesome in the garden of Melby House, on the other side of the Sound.

Ægialitis hiaticula, Ringed Plover (Sandyloo). Scattered over the stony barrens.

Strepsilas interpres, Turnstone. About two dozen were seen on the Ve Skerries, June 11th, 1890, by W. E. C.

Hæmatopus ostralegus, Oystercatcher (Shelder). Fairly common, nesting on the edge of the cliff at broken parts, upwards of 100 feet above the sea. A pair on Fogla. Several nests on Ve Skerries, found by W. E. C.

Tringa alpina, Dunlin. A few adults on Ve Skerries, W. E. C.

Sterna macrura, Arctic Tern (Tirrack). Breeds on the small flat islets; but on June 7th, 1887, and also on June 13th, 1890, —though I saw the birds,—they evidently, from their behaviour, had not yet laid. The Rev. Stephen H. Saxby, editor of his brother's work on Shetland birds, has noted the enormous number on the Ve Skerries; but Mr. W. E. Clarke, who, with Mr. J. A. Harvie-Brown, visited these rocks on June 11th, 1890, states that only a few were seen. No eggs on any skerry. The birds had probably not yet settled down for the season.

Larus canus, Common Gull (Small Maw). A few pairs only nest on the islets in the Sound of Papa. Mr. Clarke found a single nest with one egg on the Ve Skerries.

Larus argentatus, Herring Gull (White Maw). Breeds commonly on the cliffs and stacks, but, contrary to the usual rule throughout Shetland, is far outnumbered in this district by the next species.

Larus fuscus, Lesser Black-backed Gull (Saith-foul). Very abundant, especially on Lyra and Fogla.

Larus marinus, Great Black-backed Gull (Swabie, contr. for Swartback). Almost every rock pillar has its pair of these magnificent Gulls besides the large colony—unusual in Shetland—on Lyra Skerry.

Rissa tridactyla, Kittiwake (same). Abundant on the cliffs of Papa Stour. A few nest on Lyra Skerry, and I took a nest with one egg before ascending the stack.

Stercorarius crepidatus, Richardson's Skua (Allan). On June 7th, 1887, I saw a solitary individual sweeping over Papa Sound, but this bird does not breed in the neighbourhood.

Alca torda, Razorbill (Wilkie). Fairly abundant on Stour; also breeds on Lyra and Fogla.

Lomvia troile, Guillemot (Longie). Abundant on Stour; and also breeds on the Skerries, Lyra and Fogla.

Uria grylle, Black Guillemot (Tystie). Nests all round the island. I saw several fly out of their breeding-places, 100 feet up the cliffs; also noted by W. E. C. off the Ve Skerries, where it no doubt breeds.

Fratercula arctica, Puffin (Norie). One solitary bird seen by Mr. Eagle Clarke off the Ve Skerries, June 11th, 1890.

Fulmarus glacialis, Fulmar Petrel (Mallie). One seen by Mr. Scott, of Melby, and the men, circling round Lyra, while Peter and I were engaged in the ascent.

Procellaria pelagica, Storm Petrel (Swallow). Nests abundantly in many places, but does not arrive at its breeding-haunts until the last few days of June.

ORNITHOLOGICAL NOTES FROM NORFOLK.

By J. H. Gurney, F.L.S., F.Z.S.

During the latter half of 1890 the following notes were made by me in Norfolk, and may perhaps be of interest to readers of 'The Zoologist.'

Col. Feilden reports that, on July 31st, seven pairs of Sheld Ducks were hatched out near Wells.

On August 25th Mr. H. R. Leach heard and saw four Sand Grouse at Morston, and the same afternoon four were seen at Wells, as he informed Mr. Southwell, who has no doubt that they were correctly identified. A Pectoral Sandpiper, *Tringa maculata*, Vieillot, was shot at Yarmouth on September 10th, respecting which, and two others subsequently, Mr. Southwell has sent the following note:—"On the 10th Sept. Mr. B. Dye, of Yarmouth, sent me, for determination of species, a Pectoral Sandpiper which had been killed on Breydon the same morning. It proved, on dissection, to be a male, the striated markings on the throat and chest and the wing-coverts broadly margined with chestnut seeming to indicate immaturity. On the 13th of the same month Mr. Lowne, of Yarmouth, was kind enough to inform me that he had received two other specimens of this bird, which were seen together, on the 12th, on a marsh between the North River and Breydon; one was killed and the other wounded, and found the next day near the same spot still alive. I examined these at Mr. Lowne's shop a few days after, and found them in the same state of plumage as Mr. Dye's specimen, and was informed that they had proved by dissection to be a male and female. The first mentioned example is in Mr. Dye's collection, and the two others were purchased by Mr. Bellin, for whom they were set up by Mr. Lowne."

On Sept. 13th a female Red-breasted Flycatcher, *Muscicapa parva*, Bechstein, was shot at Cley by Mr. Ogilvie, the eighth on record, Cornwall being accredited with four, Ireland one, Berwickshire one, and Yorkshire one, which last was shot at Scarborough, Oct. 23rd, 1889, the same day of the same month as the Irish example in 1887—history often repeats itself in matters ornithological. Although this Flycatcher was immature, judged by its plumage, Mr. Gunn, from an examination of its ovary, formed an opinion that it was an adult.

Mr. R. J. Purdy, on Sept. 29th, saw an Alpine Swift hawking along the edge of Cromer Cliffs with some Martins: he watched it at intervals for more than half-an-hour, sometimes within a few yards of him. According to a Norfolk paper, one was killed a few days afterwards in Essex, but Mr. Christy cannot trace its whereabouts, and on the 24th of the same month another was picked up on Scarborough Spa, Yorkshire.

On October 10th a Bernicle Goose was shot by Mr. Pollock on the beach at Cley. About the same date Mr. Howlett, of Newmarket, received a Whiskered Tern, *Hydrochelidon hybrida*, Pallas, from the neighbourhood of Dersingham; but it was not until February last that it came under the notice of the Rev. J. G. Tuck, who at once saw that it was a rarity, and its identification was independently confirmed by Mr. Harting, to whom Mr. Howlett sent it to be named.

On November 5th Col. Feilden saw an Eagle at Wells, and a young King Duck was sent, in the flesh, from Hunstanton to Mr. Southwell, who has already given some particulars of it (Zool. 1890, p. 463). A second King Duck, believed to be an adult female, was sent on the 15th to Mr. Southwell from Hunstanton by Dr. Whitty. Mr. S. thinks there must have been a small flock of them, and possibly others may have been killed, for in female plumage it is difficult to distinguish from the Eider, and would be sure to be set down as such by anyone who did not examine the bill. A Dunlin—a very unexpected visitor so far from the sea—was shot on Nov. 28th, by the river at Keswick, Norwich. At the same time there were a number of Snipes, and they remained with us for at least a week.

On December 2nd Mr. Pashley obtained an adult Glaucous Gull at Cley. A Scaup Duck for some time during December frequented a pond in a garden at Bolwick, and close to a house, fully ten miles from the sea. At the close of the month this species was abundant at Cley and Yarmouth, and one was killed so far inland as Edgefield. In a protracted frost Scaups seem to suffer more than any wildfowl. On the 13th fourteen Wild Swans passed over Col. Feilden at Fulmondeston.

A Shoveller was seen on Dec. 20th in Yarmouth Market by Mr. Patterson, together with twenty-three Scaups, twenty Tufted

Ducks, and sixteen Pochards, a sharp frost soon filling the stalls. Hundreds of Dunlin were shot, and other birds suffered in equal proportion. Mr. Monement reports that at Morston a number of Mallard came to feed where a stack had been thrashed. He also observed a herd of eleven Swans, and about the same time three Swans, perhaps out of the same flock, were shot. Many Kingfishers, Green Woodpeckers, and Barn Owls—the last named fat, the others very poor—were brought to our birdstuffers. On the 20th also, Mr. Patterson saw seven Wood Larks at Yarmouth, which a market gardener had just shot in the snow.

Mr. G. Smith wrote from Yarmouth, Dec. 28th, that, owing to the prolonged frost, the poor Black-headed Gulls were ready to do anything to get food, and that a great many had been caught in nets; one bird-catcher took fifty-six in one pull with a clap-net, and altogether about 150 starved Gulls were brought to Mr. Smith. Many of the ravenous birds were fed by the charitable, and no one remembered to have seen them so daring in approaching houses.

ON THE HERPETOLOGY OF THE GRAND DUCHY OF BADEN.

By G. Norman Douglass.

(Continued from p. 59.)

3. *Lacerta vivipara*, Jacq.—Of this lizard comparatively few Baden specimens have passed through my hands, and they differed little in their coloration from others found on the Scotch moors or in England. Though exhibiting a good deal of slight individual variability, the only distinct variety in this part of Germany which has attracted notice is the light-coloured *L. montana*, Mikan, reported as occurring at Rippoldsau, in the Schwarzwald. I made an excursion for the purpose of obtaining adult specimens of this form, but the weather proved unfavourable, and the few young I succeeded in capturing resembled the typical form.

The viviparous lizard appears generally distributed throughout the Black Forest region (*i. e.*, as far north as the River Alb, which flows within a mile of Karlsruhe), continuing its range, after a considerable break, in the Odenwald. It is found plentifully all round Baden-Baden (Teufelsmühle, Herrenwies, Hornisgrinde, Wildsee), as well as further south, in the neighbourhood of Freiburg (Feldberg, &c.); further eastwards its range extends, I believe, as far as Donaueschingen. On the Kaiserstuhl, and in all districts where the vine is cultivated, this species is replaced by *L. agilis*, which shows less antipathy for human proximity, and it may be worth noticing that in Baden it does not seem to frequent moist low-lying districts as in other parts of Germany and elsewhere. In the hilly country of the Southern Palatinate this species is also found, at least if I may rely on the statement of an exceptionally intelligent peasant, who surprised me by describing accurately all the native reptiles, and, most of all, by designating *L. muralis* as the "Italian" lizard.

In point of size this species is smaller than *L. agilis*, and of more delicate build. The extreme length may be put down to 17 cm., very few, even full-grown specimens, attaining more than 16 cm.

Being found at altitudes where snow lies for six months in the year, this lizard must necessarily be of very hardy constitution, and in the Schwarzwald it may be seen up to the end of October on ground already covered with hoar frost. It often emerges as early as March. The dark coloration sometimes exhibited by this species has led to some speculation as to its probable cause, and a good deal of evidence has been adduced to show that both here and with *Anguis fragilis* this "melanism" has resulted from moisture of the surroundings. But the effects of this are easily over-estimated in dealing with the number of similar cases for which no explanation has hitherto been attempted. Referring to *L. nigra*, Wolf, it has also been suggested that its dark colour is in some manner connected with the "high altitudes" at which this lizard is often found, while it remains obscure what "moisture" and "altitudes" should have in common in order to be able to influence the colour of this and other species in an analogous manner.* In the Alps the phenomenon of black or sombre tints is so common with widely-separated classes of animals that we are driven to assume some general cause producing it. And, by way of hypothesis, to explain some of these facts, Prof. Eimer has suggested the direct effects of the "former dampness"* in the atmosphere, and is evidently disposed to see in the present colour of the embryo of *L. vivipara* (which has been "retained" by the melanic adults) that of its ancestors in the post-glacial period. But in the case of several higher alpine animals which equally tend to "melanism," this can hardly be admitted a *vera causa*, and it is almost as easy to imagine—while we are *in nubibus*—that in this instance the glacial epoch itself favoured, indirectly, the production of black, by preserving those individuals who could best retain warmth through means of dark-coloured fur. At the cessation of extreme cold the majority would re-assume more protective coloration, while those remaining in the Alps and other secluded localities would continue less liable to lose this tendency. Perhaps in this period can be placed the acquisition of viviparous habits by *Pelias berus*, as well as the origin of the singular development of *Salamandra atra* and other peculiarities of alpine forms. With *L. vivipara*, as well as *Anguis fragilis* and *Pelias berus*, the females incline more to variability of this description, and in the first-named it is therefore easy to assume a tendency to revert to ancestral coloration, though this hardly explains the matter satisfactorily. And, speaking of reptiles in general, we are unable in the vast majority of cases to account for the frequent appearance of "melanism." We see that there are many grades of this condition, from a scarcely appreciable difference in the normal coloration to complete blackness, and that all these gradations are frequently displayed by one species; and further, that while most species exhibit some individual variability of this character, the tendency has in others led to the production of melanotic varieties, possessing often a local preponderance over the typical form. It also becomes evident that this form of coloration spreads over the body in different ways, and is induced or favoured by various, not always external, causes, for the investigation of which the microscope alone is of little value.

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* Unless I am mistaken, two distinct melanistic varieties of the Rattlesnake have been discovered in N. America; one, *Crotalophorus Kirtlandi*, inhabiting swampy districts, the other confined to portions of the White Mountains. Some cases might be quoted to show that a sudden change to moisture has been temporarily followed by a general darkening of the ground-colour; on the other hand, a peculiarly light coloration has been attributed to the same cause.

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* 'Variieren der Mauereidechse,' p. 200.

Perhaps the most intelligible of dark-coloured varieties are those formed through adaptation to the environment (such as many varieties of the Wall-lizard on the islands and continent of Italy), for there is no difficulty in understanding how on black volcanic ground, for instance, a dark race should have been gradually preserved through the action of natural selection. But in other melanic island forms of the same lizard (such as *L. Lilfordi*) the colour is no more protective than in the many analogous forms of other reptiles which are repeatedly being discovered, but is due to an entirely different cause. Unfortunately, all anatomical investigation has yet obtained but negative results, but I venture to think undue importance has in some of these cases again been attached to "moisture," whose effects must necessarily be either more universal or *nil*. In some more isolated instances of "melanism" among European *Lacertidæ*, the dark colour may possibly have been produced by change of food, or some other physiological derangement, but it appears to have spread over the body by the same method as in the cases above alluded to, that is, by the gradual darkening of the ground-tint, and not through the broadening out and fusion of the original markings.*

The var. *nigriventris* of *L. muralis* may be cited as an example of partial melanism, for here, as the name indicates, the dark colour is confined to the lower parts. In tracing out its course of development, we see that the black is first visible in the shape of minute spots on the throat, each scale of the collar being often prettily marked with a black centre-piece. In Germany it is frequently found in this stage of development, and sometimes also in the next (transitional) stage, which consists in the entire under surfaces being thus covered with minute spots, which afterwards, in the true *nigriventris*, Bonap., expand to the exclusion of all other colouring. It is noticeable that, in localities where this variety has become dominant, the first gradation of colour-development has been abbreviated, and the young already display the intermediate stage, the adults passing on to the extreme *nigriventris*.

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* Thus Gachet's black *L. viridis* is not an "advanced" *maculata*, if we may judge by what he says:—"Apres avoir été plongé pendant plusieurs jours dans l'alcool, ... les grosses taches noires, dont on ne voyait que des traces, sont devenues très-apparentes" (Act. d. l. Soc. Linn. de Bordeaux, 1833, p. 168).

The facts of the distribution of this form—it occurs in patches, as it were, on the mainland and islands of Italy, sometimes exclusively, sometimes promiscuously—prove that we cannot turn to the all-explaining "external influences" for the cause of this coloration. As the initial tendency is on the part of the male, and an identical development of colour has taken place with the var. *rubriventris*, where again the throat is the first part of the body to be "ornamented," there is reason to believe that the black here, unornamental as it appears, may be due to sexual selection. To this subject I hope later to refer at more length, and will here merely remark that I am using the term strictly in the sense attached to it by Wallace, as it appears improbable that in different localities the same variety of one species should have been formed through the action of female choice.

With *Anguis fragilis*, dark-coloured individuals are occasionally met with, and here, in as many cases as have come under my notice,* the black pigment is concentrated on the under surfaces, diminishing towards the throat and tail (only in one instance the tail-end, above and below, was coloured black). The incipient "melanism" proceeds thence up the lateral portions, each scale in its turn receiving a small black central spot, till it reaches the darker zones which usually border the upper parts. Its progress may therefore be quoted as an exemplification of the "infero-superior" development, mentioned by Prof. Eimer in another work. Another process of colour-development, the "postero-anterior," is illustrated in the case of the melanic Ringed Snake, *Tropidonotus natrix*, var. *minax*, Bonap., where the black colour advances equally along both surfaces, "supra et subtus ater, concolor," as it is described. In the "*carbonarius*" variety of *Zamenis viridiflavus*, it is developed on the upper parts only: "supra ater, concolor, subtus griseus. . . . ." In the last-mentioned cases the dark colour does not, as with *L. Lilfordi*, diminish its intensity under the influence of alcohol, a fact which may be of importance as bearing on its origin; nor can it be attributed to reversion, as in the case of *L. vivipara nigra.* It seems rather to be a recently-acquired coloration. With *Zamenis viridiflavus* the black, which may be regarded as an accentuation of the normal brownish tint, is attained by a series of imperceptible transitions, the speckled immature markings—*cf.* the ontogeny of the Blackbird—lingering longest about the head and neck. Viewed side by side, an adult "*carbonarius*" and a young individual of the same species offer an interesting study for the evolutionist. The tendency exhibited by many Colubrine Snakes to uniformity of coloration, which has led to the abolition of the brighter immature patterns and markings, has here and in some analogous instances proceeded, apparently, a step too far. It may be doubted whether the apparent advantages which a uniform tint would confer are now gained, and it remains a matter of speculation what the purpose of this innovation may consist in. In spite of some evidence of a similar nature,* I am disinclined to call to aid the cumulative effects of female preference, for it can hardly be supposed that a simultaneous and almost identical change of æsthetic tastes should be taking place in many of the females of several distinct species. And the fact that this form of coloration is most strongly pronounced in the oldest male seems sufficient to account for its successful *début,* since in all probability this new variety—whatever its original "cause" and present advantages—will, as such, possess greater vigour and fertility. The few well-known cases of melanism briefly referred to will serve to show that the causes producing this condition are in Herpetology no less obscure than in other departments of Zoology, and that, like albinism, it may still be called a dark chapter in Biology. It is less commonly accompanied by pathological symptoms than albinism in its various forms, whether innate or acquired. Indeed, the only case in Herpetology of melanism occurring (perhaps) as a disease which I have met with was a *Triton*

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* For with many reptiles two or more distinct melanotic varieties have been described.

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* Poulton, 'Colours of Animals,' p. 303. It has also struck me that the "*carbonarius*" variety of this species is even more lively than the older form, but its extreme wariness may be due to the instinctive knowledge that the black colour renders it more conspicuous. And perhaps for this very reason it has not been more universally adopted by other snakes who equally incline to this coloration, but who are inferior to *Zamenis* in point of agility.

alpestris, captured near Dieppe, whose lower surfaces were discoloured by dark brown patches—akin, possibly, to the human melanism. And it may be doubted whether here the normal health of the individual was in any way affected.

AUTUMN NOTES FROM THE NORFOLK COAST, 1890.

By O. V. Aplin, M.B.O.U.

I was at Cley from the 1st to the 9th September, 1890, without seeing any remarkable migration of small birds, although this is usually the best time for meeting with the rarer migrants on that coast. My brother, Mr. F. C. Aplin, who was there a week earlier and a few days later, only noticed one decided case of immigration, *viz.* on August 29th, when there were a great many Willow Wrens and one or two Redstarts in the scrub. After I left I had news of a considerable "rush" of small birds, &c., about the 20th Sept., comprising Pied Flycatchers, Ring Ouzels, Garden Warblers, Willow Wrens, Chiffchaff, as well as Peregrines, Merlins, and some rarer species, of the occurrence of which I hope their fortunate captors will not keep ornithologists in ignorance. No Bluethroats, however, so far as I can learn, were observed this year, the explanation of which is probably that, in the absence of winds favourable to their striking the English shores, these birds passed straight on to their southern winter quarters. The unfavourable winds and fine summer-like weather of September probably also accounts for the comparatively small number of *early* autumn migratory land-birds which were observed here last season, and for the short time they stayed.

During the time that I was at Cley the wind and weather, although thoroughly enjoyable for boating and lying up to watch, or wait for, the birds, was most unpromising for bringing in any migrants or getting near the shore-birds which were already in the marsh. What waders we saw were accordingly wild, though high tides on the first few days helped us considerably.

The following diary of the weather speaks for itself:—1st, bright, still and hot. 2nd, S.W., moderate, overcast. 3rd, S.W.—W., moderate to very light; dull. 4th, S.W.—W., light; dull, wet until 2 or 3 p.m., then dull, hot and close. 5th, N.W., light to calm; hot. 6th, fine and hot, W.—N.W., light to calm; thick white mist over fresh marshes at evening, cleared at night. 7th, fine and hot, N.E., light. 8th, blazing hot; wind light, N.W. and by E. to S. at night, as it did yesterday (N.B., the wind has probably blown from S. during the last three nights). 9th, bright and hot. What we wanted was a fresh N.W. breeze all night; and we never got it.

Small birds, as might be expected, were conspicuous by their absence. On the 2nd there were a few Larks, but no Wheatears or Pipits, and no birds in the scrub save one or two Linnets. On the 3rd two Wheatears about the beach, very few Larks, one Linnet, no Pipits. 5th.—On this day a few birds had dropped in. A few Wheatears about the beach and at the Point; a flock of Linnets feeding on the seed-heads of the docks on the beach; two Ray's Wagtails on the beach; a Reed Bunting and a Willow Wren in the scrub, and a skulking Song Thrush in the grass-clumps and bushes on the beach. Sand Martins in the harbour on 3rd and 5th. Many Swallows and Martins hawking low over the marsh, flooded by the high tide, in front of the village on the 2nd. 6th.—Three or four Willow Wrens in the scrub; some flocks of Linnets and a few Meadow Pipits. 8th.—A few Meadow Pipits, one in the scrub, and one Willow Wren secured by another collector: I saw none.

Kingfishers seem to come down to the salt-marshes at this season; I saw two together near Morston on the 3rd, one in the watch-house creek on the 5th, and two towards Salthouse (in the reclaimed marsh) on the 7th. Of hawks I only saw a Merlin on the wing in Blakeney Marsh on the 3rd, and on the 9th, inland, between Morston and Stiffkey, a Buzzard of some kind on the wing, followed by Rooks: it was light brown, and very pale underneath. The Rev. Julian G. Tuck kindly wrote me word of a Honey Buzzard he had seen in the flesh, shot in Cambridgeshire on October 2nd, and remarks, "Possibly it was the identical bird you saw," I having hazarded a guess that my bird was of this species; and indeed I do not think it could have been anything else, although I never saw the Honey Buzzard on the wing before, to my knowledge.

Perhaps the most remarkable feature about the wader migration on the east coast in the *early* autumn of 1890 was the abundance of the Curlew Sandpiper. On the 2nd and 3rd

I noticed them in flocks of from half-a-dozen or so, up to twenty and even fifty. In singles and twos and threes also they haunted the creeks at low tide, either by themselves or with one or two Dunlins and Ringed Plovers. Mixed flocks also of Pigmies and Dunlins were also met with. The note of the Pigmy uttered on the wing has been said to have a resemblance to that of the Dunlin. It is quite different, and by the note you can tell the species composing the little bunches of Stints or Pigmies which come bowling along over the muds long before they are near enough for the large size, lighter colour, and white rumps of the Pigmies to be distinguished. The Dunlin's call is "treee, treee," a monosyllable. The Pigmy's is "tirr-eee, tir-ee," a dissyllable; but the space between the syllables is short, and perhaps rather the most emphasis is laid on the second, which is prolonged a little. During the days when the grassy marshes inside the sand and "marram" bank, which divides them from the mud-flats, are kept wetted by high tides, Pigmies love to feed on this ground, and continue to haunt it until a day or two of low tides and hot sun have dried them. These marshes are covered with very short turf (on which sheep come when it is dry), interspersed with plants of thrift, sea-lavender, spurrey, &c. Here and there are shallow pools, and in the wetter spots the glasswort grows. Further in, the little creeks, with a border of atriplex, begin to run down to the main one. While lying on the bank among the "marram," I watched the Pigmies on this ground through the glasses. They often assumed a very upright position as they posed beside a pool. Much less restless than Dunlin or Ringed Plover, they do not run about so much, and when a Pigmy and one or two Stints and Dotterel have lit together in a creek, or elsewhere, the latter begin to run quickly as they feed, but the former is much quieter and more sedate. This fact has been previously recorded, but it is so noticeable a trait that it is worth repeating when treating of the habits of a bird about which too much has not been written. On one day at least (3rd) Curlew Sandpipers were far more abundant than Dunlins in the marsh. All that I met with were young birds of the year in the speckled dress, but I saw in the birdstuffers' shops three fine specimens in red dress, with only a few light feathers beginning to show, shot early in August. Apropos of this, I was rather surprised to find that Major J. Biddulph, writing "On the Birds of Gilgit" in 'The Ibis' (1882, p. 288), says that *Tringa subarquata* shot on Sept. 4th had completely assumed the winter plumage. According to Messrs. Gurney and Southwell's list (Trans. Norfolk & Norwich Nat. Soc. 1886–7), Norfolk has never produced "one in adult winter garb." The adults (which seem to arrive very early in autumn) probably go on before the season is far advanced, but Sept. 4th seems an extraordinarily early date for them to have acquired full winter dress, and, coupled with the early far southward migration of the adults, is a curious and interesting point in the life-history of this Sandpiper, about which we know so little at present. The fact that the old birds shot early in August already showed a few light-coloured feathers also points to a remarkably early assumption of the winter dress.* The early date at which the adults go south, of course, accounts for the fact stated by Messrs. Gurney and Southwell; but it appears that young birds of the year (as is the case to some extent with the Dunlin) do not assume winter dress until a considerable time after the adults. But although the young stay much later in Norfolk than the adults, I believe that it is very rare for even the former to assume the grey winter dress in that county, though some occasionally remain into October, and I have seen one myself in the marsh as late as the 8th of the month.† But I merely judge of their plumage in the autumn from the local specimens I have seen at the birdstuffer's (all of which retained the speckled dress), and have never handled an October example in the flesh. In length of beak the Curlew Sandpiper presents considerable variation. I measured nine birds which we got one day. The beak of one measured 1·65 in.; of another, 1·5 in.; and those of the remainder between 1·4 and 1·35 in. The first bird was decidedly larger in the body than the others.

In other seasons when Pigmies have been numerous, Little Stints have followed suit, but last year proved an exception. A young bird was secured on the 2nd, and I saw another up the harbour channel the next day. The other waders met with will perhaps best be noticed as they were observed and set down in my note-book:—

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* Some adult Dunlins will not have changed at all nearly a month later.

† Qy.: Do they assume full winter dress the first year? Probably not.

On 2nd Ringed Plover very numerous and shy; one very young bird puzzled us all by a curious variation of its note, a loud, clear "peeep," as it sat out on a bare and very soft mud-flat. Whimbrel, fifteen in one lot, and many others. Bar-tailed Godwit, a few. Dunlin, small bunches; single birds and twos and threes were tame; adults still very little changed, and those in first dress not at all. Knot, a bunch of eleven and a few others; the big flocks which arrived early in the season have been pretty well exterminated. Turnstone, only one seen. Curlew, herd of thirty at flight time and others. Ruff, two about upper end of Morston Creek. Peewit, considerable flock on green marshes. Greenshank, one (shot). Redshank, a good many about creeks; Heron. 3rd, Whimbrel in fair numbers; one Knot, flying with a dozen Godwits, was the only bird to fall out to a shot; another single one on beach edge; a Greenshank in creek between Morston and Stiffkey; Common Sandpiper, one near Stiffkey Sluice; Grey Plover, one. 4th, Common Sandpiper, one came right up round the bend of the harbour to Cley; Turnstones, a few (one swam, when wounded, with ease); Peewits. 5th, Turnstone, a good many at the Point (all seen at close quarters were young, but some changing); Sanderlings, two up the channel in afternoon, when the dead low tide had uncovered the sandy banks: I do not think they ever come up at other times, as they dislike mud, and do not come on it; Heron. 6th, Sanderlings, a little flock along the beach in afternoon; Common Sandpiper passing west along beach late in afternoon, calling. 8th, Peewits, a great flock, two long lines, below Stiffkey; Godwits, a few: these birds are often tame when feeding in very still, hot weather; Dunlin, one quite half changed to winter dress on back—quite an exception to the other examples handled; Sanderling, a flock of fifteen or twenty flew up at dead low tide and lit on a sandbank, where they remained feeding for some time: two shot afterwards from the flock were birds of the year, but the buff on the neck had nearly disappeared, and the upper parts were merely checkered black and white—very pretty little birds. A Golden Plover with breast rather more black than white was shot by a gunner to-day.

It was too early in the season for many ducks. On the morning of the 2nd we saw five Sheld-duck on the mud-edge at Blakeney: they were very wild, but, as far as I could see with the glasses, they were all young birds, probably bred on the "meals" towards Wells. The next morning two Shovellers flew in, apparently from the sea. From the position of their wings, which are set on very far back, I guessed what they were, and in the afternoon they passed close enough for us to see them, and their large, ugly beaks, plainly. One Teal was seen the same day.

Most of the Terns had left; but we saw seven or eight Common Terns on the 2nd, and two on the 8th. Lesser Terns were met with on the 2nd, 3rd, 5th, and 8th; five on the first day; one adult shot was losing the black on the crown. An immature bird shot on the 5th was—according to the local stuffer—in a plumage in which they are not often procured there. So perhaps the young birds go south soon after they can fly. This idea is borne out by what I have observed in the csse of Common Terns shot in Oxfordshire: there they often occur rather late in autumn, and the specimens procured at that season are almost always adult birds.

During this visit I noticed a good many Great Black-backed Gulls. Eleven, chiefly adult birds, sitting on the green marsh on the 3rd looked almost as large as sheep. Common Gulls in grey dress were numerous. F. C. A. shot one which was only just fledged and had quite a soft beak. A good many Herring and some Lesser Black-backed Gulls. Black-headed Gulls in swarms; all adults had lost the black hood. On the 6th, in the still, hot afternoon these birds were hawking flies, with the motions of Starlings under the same circumstances, over the starwort-grown mud. The same day Gulls (a good many of them Great Black-backed) were passing west all the afternoon.

There were some Razorbills off the beach on several days. On the 5th I saw one, in summer dress, going west. On the 6th one, an immature bird, quite close to shore, and another further out, going in the same direction. The next day there were several a little way out. I was assured that they constantly occurred when still in down, and I have seen a very young one, procured off the beach, preserved. A careful observer assures me he once saw an old Razorbill there accompanied by *two* young ones, and that she looked from side to side at them, and took great care of both. An old Great Crested Grebe appeared off the shore on the afternoon of the 6th. It had a good crest, and remains of the rufous on the cheeks and ruffs. I watched it for a long time through the glasses, and then went over the pebble bank. Some time later I came back (it being then nearly low water), and then saw it close in shore. I waited until it dived, then ran down the beach and lay down until it came up and went down again, then ran again. The third time, unfortunately, it came up rather quickly, and saw me moving. Down it went, of course, and I am sure did not show itself again until it was about 200 yards from the beach.

To say much about the wonderful migration which affected the Norfolk coast in October would be out of my province. I hope to see a full account of it by a Norfolk ornithologist; but in the meantime extracts from three letters from a resident on the coast may be interesting to your readers. Skuas seem to have been unusually numerous:—"This morning I had three Skuas. . . . . I think two are Richardson's, and one, very much smaller, is, I fancy, Buffon's. There were twenty in a flock, one with very long tail [adult Buffon's], and one very large [? Great Skua; or, more probably, only Pomatorhine] (2nd Oct. 1890). . . . . This wind [North in Oxon] has brought a great many wildfowl over." My correspondent had lying before him eight Skuas—Pomatorhine, Richardson's, and one Buffon's. "For the last two days the ducks and geese have been passing in packs of hundreds, closely following each other." Pintail and Long-tailed Ducks brought in among others. "Gulls, Dunlins and other small birds in thousands are passing to-day" (Oct. 18th). Had several Purple Sandpipers this season; "two others came in last night." On the 1st Nov. a Ring Ouzel. A Bewick's Swan on 20th October. "I never saw [during late high winds] such a migration of Rooks, Jackdaws, Grey Crows, Starlings, Larks, and Finches down to the tiny Goldcrest. There have been more Woodcocks this year than usual" (6th Nov. 1890).

NOTES AND QUERIES.

MAMMALIA.

Deer and other Animals eating Yew.—It seems to be a well-established fact that Goats will eat the foliage of the yew with impunity, whilst other creatures, some closely allied, are poisoned with it immediately. Knowing that a doubt exists in the minds of some people as to the deadly effect, or otherwise, of the yew when eaten by Deer, it may be of interest to quote an incident of comparatively recent occurrence. During the severe weather of December and January last most wild creatures suffered more or less from the inclemency of the season, and at the end of December, when a fallow doe was found dead in the forest, its decease was at once attributed to the cold, and the scanty fare. Early in the new year, however, a fine buck was found dead, but apparently in plump condition, and this led to the supposition that it had eaten something to cause its death. On opening it, the stomach was found to contain a quantity of yew leaves with which no doubt it had been poisoned. In speaking of the subject to a gentleman whose knowledge of Forestry is considerable, he expressed an opinion that, as a rule, truly wild creatures were not affected by eating yew so readily as domesticated ones; though where the difference lay he did not hazard a guess. From experience he knew that if clippings of yew—if only a day severed—were eaten, they were more deadly and rapid in their effect than the growing foliage, and that, whilst the latter was certain death to some creatures, Rabbits and Hares would eat it with impunity. He had known yew-shrubs completely destroyed, and even the bark eaten off, by these Rodents, without any apparent injury or inconvenience to themselves. Can this be confirmed or denied by readers of 'The Zoologist'? If correct, it but proves the truth of the saying of one creature's meat being another's poison.—G. B. CORBIN (Ringwood, Hants).

[Some correspondence on this subject was published in 'The Zoologist' some years ago. See the volume for 1878, pp. 177, 206, 253. Several instances of Pheasants having been poisoned by yew have been reported. See 'The Field,' Nov. 25 and Dec. 2, 1876; and Dec. 20, 1890.—ED.]

Hybernation of Squirrels.—If any further evidence is wanted to prove that Squirrels remain active during the coldest weather, I am able to state that during the whole of the recent severe and prolonged frost several Squirrels, which had been accustomed to climb to the nursery window of Drakelowe Hall, Burton-on-Trent, where they were fed, continued their visits during the whole of the time, and seemed to be as lively as usual.—PHILIP B. MASON (Burton-on-Trent).

Hybernation of Squirrels. — With regard to the hybernation of Squirrels, which is just now receiving attention in 'The Zoologist,' I would mention that here,—in this part of the country, at any rate,—I would undertake to find the traces of the Squirrel in the snow whenever the ground is covered with it. My belief is that Squirrels dislike damp and wet much more than cold. — F. P. Johnson (Castleheads, Brampton, Cumberland).

BIRDS.

The Lesser Kestrel in Ireland.—On the 20th of February last, Mr. Tank, of Aungier Street, brought to me, for identification, an adult male of the Lesser Kestrel, *Falco cenchris*, freshly killed. He had just received it from Mr. W. H. Cowell, to whom it had been presented. Mr. Michael Carr informs me that he shot it on the 17th of February, on his farm at Woodford, near Shankill, Co. Dublin. When killed it was feeding upon earthworms, on freshly ploughed ground. My friend Mr. James Johnston, of Bray, has very kindly made enquiries in the neighbourhood, and has ascertained some interesting particulars concerning the habits of the bird since its first arrival, which I proceed to quote from his letter :—"It first appeared at Glenamuck (George Byrne's place) early in November, about the 8th or 10th of the month. The ploughman told Mr. Byrne that a Hawk had followed him during the afternoon. Mr. Byrne at first took no notice, but, hearing of it on several evenings, he went one day to the field where the plough was at work, and saw the bird; it was then very tame. Next day he brought down a gun, and, when the bird returned, he fired and missed it. This shot made it very wary on sight of a gun, so that, although it still fed close to any of the workmen, yet, if a man appeared with a gun, it was off at once. January 4th was the last day it was seen at Glenamuck, On that day a brother of Mr. Byrne followed it, but to no purpose. After this I have two records of its being observed by a sportsman named Sutton, who had previously, on different occasions, seen the bird at Glenamuck, and tried to get a shot at it. Sutton is himself a farmer, and his last observations were both made on newly-ploughed land. During the snow the bird was not seen, but, after the thaw, when ploughing was resumed, it appeared again. Its manner of feeding was something like that of a Gull,—at one time walking along the furrows, busily working the freshly-turned sod, again rising on the wing, and quartering behind the workmen until a fat worm appeared, on which it would immediately drop. The bird usually fed from about eleven o'clock until evening." It only remains to add that the only occasion on which Mr. Carr saw the bird was on the 17th of February, the day he shot it, and that it was a couple of hours about the place before he secured it. Thus it appears that this little Hawk remained in the same neighbourhood, on the borders of Dublin and Wicklow, for at least three months.—A. G. More (74, Leinster Road, Dublin).

Lesser Kestrel at Scilly.—A male specimen of this falcon, *Falco cenchris*, was shot during the first week in March on the island of Tresco, Scilly, and was forwarded for preservation to Mr. Burton, of Wardour Street, London.—J. H. Jenkinson (Ocklye, Crowborough, Tunbridge Wells).

[We have seen this bird, and it is a very good specimen of an adult male. The Lesser Kestrel is not recognised as a British species in the latest edition of "Yarrell," but will be found described and figured by Mr. Howard Saunders in his 'Illustrated Manual of British Birds,' wherein it is stated that two examples were already known to have occurred in England; one in Yorkshire, in Nov. 1867; the second near Dover in May, 1877. This number is now doubled by the accession of the two specimens here recorded from Ireland and Scilly.—Ed.]

Lines of Migration.—*A propos* of the suggested line of migration from the Wash to the Severn, it may be of interest to note the frequent passage of Sea Gulls across Warwickshire from east to west, and *vice versâ*. My notes have been taken from a point six miles north of Warwick, and again from a point on the borders of Warwickshire and Staffordshire, and in both places I have observed for many years the passage of small flocks of Gulls. My notes unfortunately only record a few of the flocks I have seen, and these were chiefly seen in April, I find, and were all, with one exception, going in an easterly direction. I have frequently seen them going in an opposite direction, but I have no dates. They appear to be all of the same species (Kittiwakes?); but once I saw what appeared to be a large Black-backed Gull soaring up in circles at a great height, and finally going away in a north-easterly direction, in a strong east wind. This was also in April. —Douglas Brodie (Wellesley Grove, Croydon).

[We have received another communication on this subject from Mr. F. B. Whitlock, which stands over for want of space.—Ed.]

Smews in Bucks and Oxon.—A young female Smew, *Mergus albellus*, was brought to me to identify, by a fisherman, from whom I purchased it, on January 12th. He reported that he had shot it that morning near the river just below Marlow, close to the Brewery sewage-ground, and that it had been solitary. Wing, 6⅞ inches. The only other instance of this species in this county that has come to my notice was an adult male, said to have been shot on, or close to, the river, about half a mile below here, opposite Stonehouse (and therefore a Buckinghamshire specimen), in January, 1876, which was likewise brought to me to identify. A few days after obtaining the above specimen I received a message, asking me to call at a local birdstuffer's to identify some birds, which proved to be likewise Smews — an adult and young drake. These were shot at Sonning (Oxfordshire), by Mr. J. L. Hill, son of the Rev. W. Hill, of Medmenham, who wrote me word that four birds came over his son, who secured these two, right and left. One of the survivors was subsequently shot by some-one else at Sonning, but lost; and the fourth was seen later again, and shot at unsuccessfully. From Capt. Clark Kennedy's 'Birds of Berks and Bucks,' and from Mr. Aplin's recent 'Birds of Oxfordshire,' it will be seen that the occurrence of this species is worthy of record.—A. H. Cocks (Great Marlow).

Destruction of Kingfishers.—On visiting a local birdstuffer's to identify the above-mentioned Smews, he showed me a pair of Kingfishers he had just set up, telling me that he had had nearly a hundred sent him during the past year, and remarked what a shame such a slaughter was. Shooting on the river, or tow-path, is now prohibited by the Bye-laws of the Thames Conservancy, and it would be interesting to learn how many (if any) of these beautiful little birds had been killed legally.—A. H. Cocks (Great Marlow).

Great Grey Shrike at Spurn.—With reference to Mr. Macpherson's statement (p. 97), on my authority, that fourteen Great Grey Shrikes were identified at Spurn in the autumn of 1876, twelve of the number having been shot during October (Zool. 1877, p. 10), I wish to point out that this is an error, the printer having substituted *ten* for *two* written by me. The mistake was corrected in the following number of 'The Zoologist' (1877, p. 59).—John Cordeaux (Great Cotes, Ulceby).

Nesting of the Blue Robin in Confinement.—Instances of the nesting of the common Blue-bird of N. America in aviaries are not uncommon; but few persons take the trouble to watch the whole process from the time when the cock bird first begins to feed the hen until the young have moulted into their adult plumage, and therefore the records of the nidification of this bird are—so far as I have been able to judge from such as I have seen—imperfect. My Blue Robins made friends early in June, the cock bird giving every insect he got hold of to the hen, to induce her to receive his attentions: the hen was very coy, and refused his advances until about the end of the first fortnight; the pairing was a noisy affair, as the cock bird kept up an incessant shrieking noise, with his body elongated and his beak turned up to the ceiling, for fully half an hour beforehand and for quite ten minutes afterwards. On Sunday, the 15th of the month, the hen spent the whole day in carrying up hay to a large deep box nailed against the wall near to the ceiling, and on the surface of this she formed a saucer-shaped depression, in which shortly afterwards she laid three eggs: whilst sitting she was fed by the cock bird, but whenever he gave her an insect she invariably left the nest to eat it. In thirteen days the eggs hatched, and two days later two of the young birds were carried out dead, and dropped upon the floor at some distance from the nest; the third bird was safely reared, and moulted into his adult plumage towards the end of August. The staple food which I prepared for my Blue Robins, and upon which they partly fed their young one, was a mixture of crumbled stale bread (two parts), Abraham's insectivorous birds' food (one part), prepared yolk of egg (one part), dried ants' eggs (one part), and grocer's currants (one part) slightly damped; I also gave them small earth-worms mixed with garden-mould in a large saucer, spiders of all sizes in quantity, flies, butterflies, moths, chrysalides, caterpillars, a few meal-worms, and beetles. One point in the feeding which I have not seen recorded interested me greatly:—It is well known to all breeders of both British and foreign finches that they always feed one another and their young from the crop; they never give them food which is not partially digested, so that the young are fed not only on vegetable or insect food, but upon half-digested and softened seeds; but it was quite a new fact to me that soft-billed birds prepared food for their young: indeed I know that our Robin, Blackcap, and in fact our Warblers generally, Thrushes of all kinds, Starlings, and Tits, merely crush or break up the worms or insects with which they feed their young. In the case of the Tits this does not appear to be done, or, if so, only in the privacy of the nesting-hole. My Blue-birds, however, generally crushed the food, and invariably swallowed it, disgorging and swallowing several times before giving it to the young bird; if half-a-dozen house-flies were given they would frequently swallow the whole, and give them to the young bird in one mouthful. The first time that I observed the old birds swallowing the insects put into the aviary for the benefit of the young one, I felt much annoyed, as it was not easy work to keep up a supply of insect food, even in the summer, in the suburbs of London; but presently I saw a convulsive movement in the throat, and the insects reappeared in the beaks of the parent birds, each of which in turn carried the food to the nestling. The young bird left the nest when twenty-three days old: I had been led to suppose that he would resemble the hen, but, in addition to his greatly inferior size and spotted breast, he was altogether of a far more cinereous tint. In about eight or ten days he was perfectly able to feed himself, and the parents then absolutely disregarded all his cries for food. After their moult I found my Blue Robins troublesome in the bird-room, as they not only ate all the eggs laid by my Mannikins (*Munia* sp.), but chased these little birds, and the still smaller Waxbills (*Estrelda* sp.), all over the aviary, to their injury, as in their fear they dashed themselves recklessly against the wires, and were afraid to feed and bathe quietly; I therefore removed the Blue-birds to one of my out-door aviaries, where they soon appeared to be quite at home. The Blue Robin is said to be able to withstand the cold of an English winter in an unheated aviary; my experience has shown me that this assertion should be received with caution. In the aviary in which I placed my birds there are two small snuggeries,—a cocoa-nut nest and a Canary's nesting-box; the cock Blue Robin, at the approach of cold weather, appropriated the former and the hen the latter as sleeping berths; but the poor young cock was left out in the cold, which gradually brought on tuberculosis of the liver and spleen, from which he died on the night of Dec. 9th I should therefore recommend all who desire to keep these birds in an unheated structure to provide them with some box in a warm corner near the roof, into which they may creep to pass the winter nights.—A. G. Butler (Natural History Museum, South Kensington).

REPTILIA.

A New Locality for Lacerta viridis.—Mr. Norman Douglass states (p. 16) that the range of *Lacerta viridis*, Laur., in Baden, is apparently restricted to two points,—the Isteiner Klotz, a hill lying between Freiburg and Bâle, and the Kaiserstuhl, between Freiburg and the Rhine. I can add a third locality in the Grand Duchy. While living at Heidelberg, in 1887, my brother and I frequently met with this Lizard during the spring, in the grass on the north bank of the Neckar, a short distance above the town, which lies on the opposite side of the river. We invariably found the two sexes together, and on one occasion we found a pair in a hole in a bank several hundred feet up the hill, on the same side of the river. I kept a number in captivity during the summer of 1887, and they throve well on earth-worms and butterflies, varying the monotony by devouring an occasional *L. agilis.* Mr. Douglass states that he has found the eggs "as early as the latter part of June," but one of mine laid a number of eggs on June 10th, in the early morning, and another individual laid on June 15th. Perhaps I ought to state that I kept my Lizards between the double windows of my room, on the south side of the house, so that they got a large amount of sun. The first time that eggs were laid the male Lizards promptly seized some, and ate about three before I could stop them. The remainder of the eggs, and those laid subsequently, I placed in the sun to see whether they would hatch; but they only shrivelled up, although union of the sexes had taken place before the eggs were laid.—E. E. Austen (Natural History Museum, Cromwell Road).

SCIENTIFIC SOCIETIES.

Linnean Society of London.

February 19, 1891.—Prof. Stewart, President, in the chair.

Messrs. A. W. Kappel, E. M'Clure, J. F. Braga, and W. M. Webb were admitted Fellows; and Messrs. H. Jones, F. H. Coste, and A. W. Turnbull were elected.

Mr. Thomas Christy exhibited a number of food-nuts utilised by the natives of Northern Queensland, but the species of which had not been determined, since no flowers nor foliage of the trees producing them had been obtained.

On behalf of Mr. A. R. Hunt, the Secretary exhibited a curiosity, in the shape of an orange within an orange, and remarked that, although by no means of common occurrence, a similar abnormality had been described and figured by Dr. Perrier (Bull. Soc. Linn. Normand. ix. tab. 2).

Mr. G. C. Druce gave an account of the Dillenian Herbarium at Oxford, prefacing his remarks with some particulars of Dillenius's life and labours, and of the botanists of his day with whom he was in correspondence.

Prof. Stewart exhibited and described a remarkable hermaphrodite Trout, explaining, by means of the black-board, the normal structure of the genital organs in both sexes of the fish, and pointing out in what respects the specimen in question differed.

A paper was then read by Dr. John Lowe on some points in the life-history and rate of growth in yew-trees, and some excellent photographs and drawings of celebrated yews were shown in illustration of his remarks.

March 5.—Prof. STEWART, President, in the chair.

Capt. T. Keene was admitted, and Messrs. T. B. Cato and E. Norman Langham were elected Fellows of the Society.

Mr. D. Morris exhibited a dwarf species of *Thrinax* which he found growing plentifully in the island of Anguilla, West Indies, and which was apparently undescribed.

Mr. T. Christy exhibited the fruit of some undetermined species of tree which had been introduced into commerce by the name of Monchona, but the origin of which had not been ascertained.

Mr. J. E. Harting exhibited several instantaneous photographs (taken by Mr. W. H. St. Quintin in Yorkshire) of a living Great Bustard, *Otis tarda*, and gave a brief account of the recent visitation of several of these birds to England. Between Dec. 9th and Feb. 5th no fewer than seven had been shot in Norfolk, Suffolk, Essex, Sussex, Hants, Wilts, and Carmarthenshire. For details of all see 'The Field,' Feb. 28th.

On behalf of Miss E. Barton, Dr. D. H. Scott gave the substance of a paper communicated by her, and entitled "A Morphological and Systematic Account of the Fucaceous genus *Turbinaria*."

Mr. George Murray described some new species of *Caulerpa*, with observations on the position of the genus. In elucidation of this paper, Mr. E. M. Holmes exhibited a large series of specimens, showing the extreme variability of the species of sea-weeds which had been referred to this genus.

A paper was then read by Dr. John Lowe on the specific identity of two forms of parasitic Crustacea, *Lerneonema spratta*, Sowerby, and *L. eucrasicholi*, Turton, the only two of the genus which had been hitherto recognised in Britain. A third species had been described by Dr. Salter (Ann. Nat. Hist. 1850, p. 56) from the eye of the Herring, and to this he gave the name of *L. Bairdii;* but his figures show clearly that they were drawn from imperfect specimens of *L. spratta*, which had been forcibly removed from the fish's eye, leaving the head behind. The parasites in question had been found only on the Sprat, Herring, and Anchovy.

Zoological Society of London.

February 17, 1891.—Prof. Flower, C.B., LL.D., F.R.S., President, in the chair.

Mr. Edward Gerrard, jun., exhibited an extraordinarily large head of a Koodoo Antelope, *Strepsiceros kudu*, which had been shot by Mr. F. C. Selous near the river Macloutsie, Khama's Country, South Africa, in May last.

Mr. T. D. A. Cockerell exhibited and made remarks on a curious and rather noteworthy monstrosity of a land-shell (*Clausilia rugosa*) with two apertures.

Mr. G. A. Boulenger exhibited and made remarks on the renewed left pectoral fin of an African Lepidosiren (*Protopterus annectans*), from a living specimen in the Society's Gardens. He also exhibited young specimens and eggs of a South African Siluroid fish (*Galeichthys feliceps*), sent to him by Mr. J. M. Leslie, of Port Elizabeth. They had been taken from the mouth of the male parent, which carries its eggs in this extraordinary manner.

Prof. G. B. Howes read a paper on the probable existence of a Jacobson's organ among the Crocodilia, and made observations upon the skeleton of that organ in the Mammalia and upon the basimandibular elements in the Vertebrata.

Mr. R. H. Burne made some observations on the variation and development of the Leporine sternum.

Mr. Scott B. Wilson read a paper on *Chasiempis*, a genus of Muscicapine birds peculiar to the Sandwich Islands. He described one of the species inhabiting the island of Oahu as new, and named it *Chasiempis gayi*, after Mr. F. Gay, of Kauai. The author further gave a key by which the five species of this genus inhabiting the various islands may be distinguished. Mr. Wilson also read the description of a new bird of the genus *Himatione*,—based on a single specimen obtained on the island of Maui,—naming it *Himatione dolii*, after Mr. S. B. Dole, of Honolulu.

Mr. G. A. Boulenger read a paper on some British specimens of the remains of Homœosaurus, and made remarks on the classification of the Rhynchocephalia.

Mr. F. E. Beddard read a preliminary account of an Earthworm from West Africa, referable to a new genus and species, which he proposed to call *Libyodrilus violaceus.*

Mr. Frank Finn gave an account of a functional ductus botalli which he had observed in specimens of two birds (*Nycticorax violaceus* and *Dafila spinicauda*) dissected in the Society's Laboratory.

March 3.—Prof. FLOWER, C B., LL.D., F.R.S., President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of February.

Mr. Sclater exhibited the typical and unique specimen of Macgregor's Bower-bird, *Cnemophilus macgregorii*, from the Queensland Museum, Brisbane, which had been kindly lent to him by the authorities of that Institution.

A report was read, drawn up by Mr. A. Thomson, the Society's head-keeper, on the insects bred in the Insect-house during the past season.

Mr. O. Thomas gave an account of a collection of small Mammalia made by Mr. F. J. Jackson, in Eastern Central Africa, during his recent expedition through the territories of the British Imperial East African Company. Fifteen species were represented in the collection, of which three appeared to be new to science: these were named *Nyctinomus lobatus, Otomys jacksoni*, and *Rhizomys annectens.*

A communication was read from Miss E. M. Sharpe on the Butterflies collected by Mr. F. J. Jackson during the same expedition. Twelve new species were described in this paper, and a general account of the whole collection was promised on a future occasion.

A communication was read from Dr. R. W. Shufeldt, containing observations on the comparative osteology of the *Columbidæ* of North America.—P. L. SCLATER, *Secretary.*

ENTOMOLOGICAL SOCIETY OF LONDON.

March 4, 1891.—The Rt. Hon. Lord WALSINGHAM, M.A., F.R.S., Vice-President, in the chair.

Mr. H. St. John Donisthorpe, Mr. F. W. Frohawk, Mr. Charles Fryer, Mr. G. F. Hampson, B.A., Mr. Frederick J. Hanbury, F.L.S., and Mr. G. B. Routledge were admitted into the Society.

Mr. F. P. Pascoe exhibited, and made remarks on, a curious Coleopterous larva with a case somewhat resembling that of the Lepidopterous genus *Psyche*, which was found at the Theatre of Bacchus, Athens.

Mr. J. W. Douglas sent for exhibition specimens of *Icerya* (*Crossatosoma*) *ægyptiaca*, which, through the kindness of Mr. A. D. Michael, he had received from Alexandria on the 19th January last. It was stated that in travelling most of them had become loose, and had lost their waxen appendages; but a few still remained on the stems of their food-plant. In connection with this subject, Mr. G. H. Verrall alluded to a Dipterous parasite of *Icerya* from Adelaide—*Lestophonus iceryæ*, Williston—which had been bred from *Icerya Purchasi*, Mask., last February. Mr. M'Lachlan and Lord Walsingham continued the discussion.

Mr. R. Adkin exhibited a long and interesting series of *Triphæna comes* (*orbona*), from various parts of the South of England, Yorkshire, Forres, the Isle of Man, the Isle of Lewis, and the North of Ireland.

Mr. G. F. Hampson exhibited a series of varieties of *Plotheia frontalis*, Walk., which was the only species in the genus, and confined to Ceylon. He said that the varied forms of this species had been described under twenty-one different names by Walker, Felder, and Moore.

Mr. F. Merrifield showed a number of specimens of *Selenia illustraria*, of three different stocks, proving that the spring brood of this species, which passed the winter in the pupal stage, was, like the summer pupa, materially affected in colouring by the temperature to which the pupa had been exposed in its later stages. He thought this fact, coupled with similar results ascertained with respect to the single-brooded *Ennomos autumnaria*, indicated that the operating cause was one of wide general application, and that valuable results might be looked for if entomologists would turn their attention to the subject. Capt. Elwes said that in his experience in many parts of the Palæarctic region, in Japan, in the Taunus Mountains on the north-eastern part of the Mediterranean, in the Canary Islands, and elsewhere, where there was a combination of heat and moisture, all the commoner species of Lepidoptera occurring in this country attained a larger size and a greater brilliancy of colouring than in colder and drier regions; and he referred to such species, amongst others, as *Pieris brassicæ* and *Argynnis paphia*. The discussion was continued by Mr. Jacoby, Mr. Fenn, and others.

Mr. W. H. B. Fletcher exhibited a long series of *Zygæna lonicerœ* from York, and *Zygæna filipendulæ* from Shoreham, Sussex; also a series of hybrids obtained by crossing these two species. He stated that the eggs obtained from these hybrids were all infertile. Lord Walsingham said this latter fact was extremely interesting.

Mr. F. W. Frohawk exhibited a living specimen of an ichneumon which had just emerged from a chrysalis of *Papilio taunus*.

Mr. C. J. Gahan exhibited a number of species belonging to the genera *Lema* and *Diabrotica*, and read a paper on them, entitled "On mimetic resemblances between species of the Coleopterous genera *Lema* and *Diabrotica*." Lord Walsingham, Mr. Jacoby, Colonel Swinhoe, and Mr. Champion took part in the discussion which ensued.—H. Goss and W. W. Fowler, *Hon. Secretaries*.

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